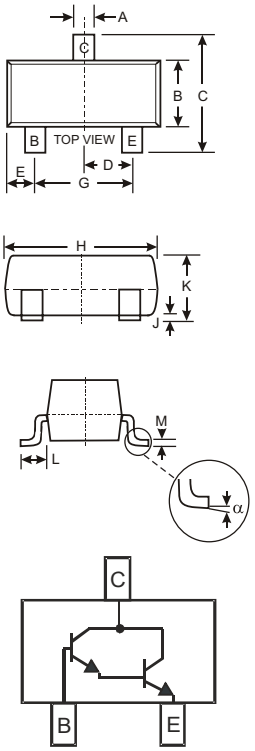
HAICHUANG SEMI

MMBTA13

NPN SURFACE MOUNT DARLINGTON TRANSISTOR

Features

- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching
- High Current Gain
- Marking Code:K2D



SOT-23		
Dim	**Min**	**Max**
A	0.37	0.51
B	1.20	1.40
C	2.30	2.50
D	0.89	1.03
E	0.45	0.60
G	1.78	2.05
H	2.80	3.00
J	0.013	0.10
K	0.903	1.10
L	0.45	0.61
M	0.085	0.180
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	30	V
Collector Emitter Voltage	V_{CEO}	30	V
Emitter Base Voltage	V_{EBO}	10	V
Collector Current	I_C	500	mA
Power Dissipation	P_{tot}	300	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{Stg}	- 55 to + 150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Parameter	Symbol	Test conditions	Min	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C= 100μA,I_E=0	30		V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C= 100μA, I_B=0	30		V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E= 100μA, I_C=0	10		V
Collector cut-off current	I_{CBO}*	$_{CB}$=30 V, I_E=0		0.1	μA
Emitter cut-off current	I_{EBO}*	V_{EB}= 10V ,I_C=0		0.1	μA
DC current gain	$h_{FE(1)}$*	V_{CE}=5V, I_C= 10mA	5000		
	$h_{FE(2)}$*	V_{CE}=5V, I_C= 100mA	10000		
Collector-emitter saturation voltage	$V_{CE\ (sat)}$*	$_C$=100mA, I_B=0.1mA		1.5	V
Base-emitter saturation voltage	$V_{BE\ (sat)}$*	$_C$=100mA, I_B=0.1mA		2	V
Base-emitter voltage	V_{BE}*	$_{CE}$=5V,I_C= 100mA		2.0	V
Transition frequency	f_T	V_{CE}=5V, I_C= 10mA f=100MHz	125		MHz
Collector output capacitance	C_{ob}	V_{CB}=10V,I_E=0,f=1MHz		12	pF

* Pulse Test : pulse width≤300μs,duty cycle≤2%.

TYPICAL TRANSIENT CHARACTERISTICS

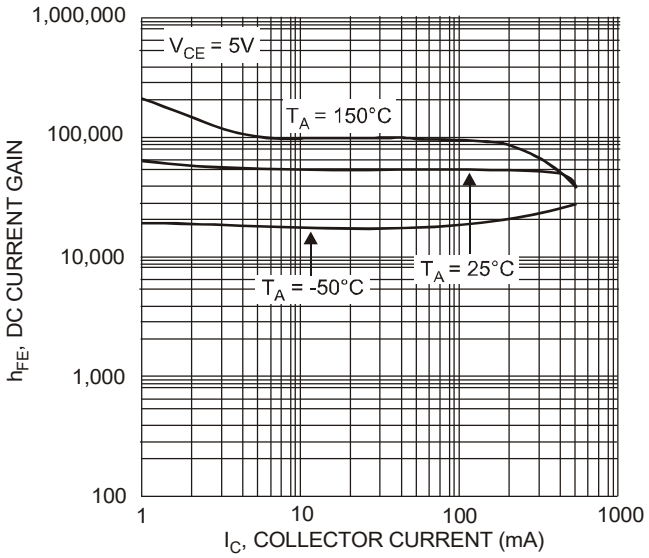


Fig. 1, DC Current Gain vs Collector Current

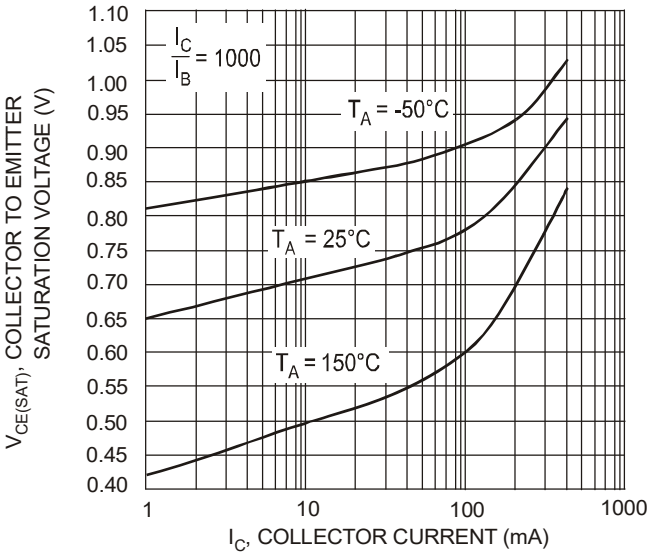


Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current

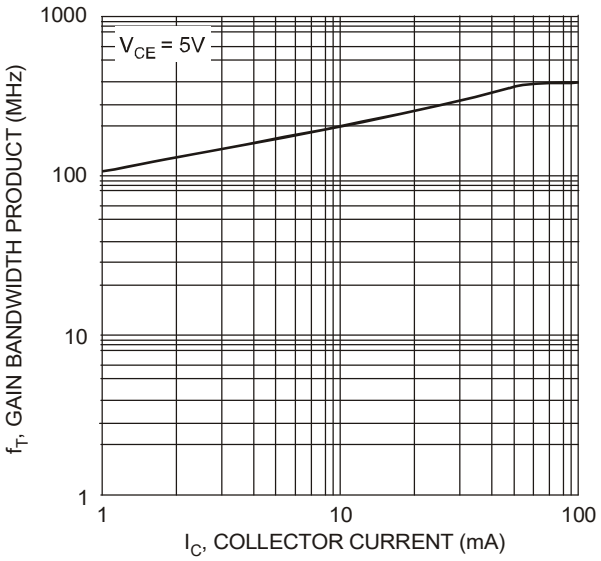


Fig. 3, Gain Bandwidth Product vs Collector Current

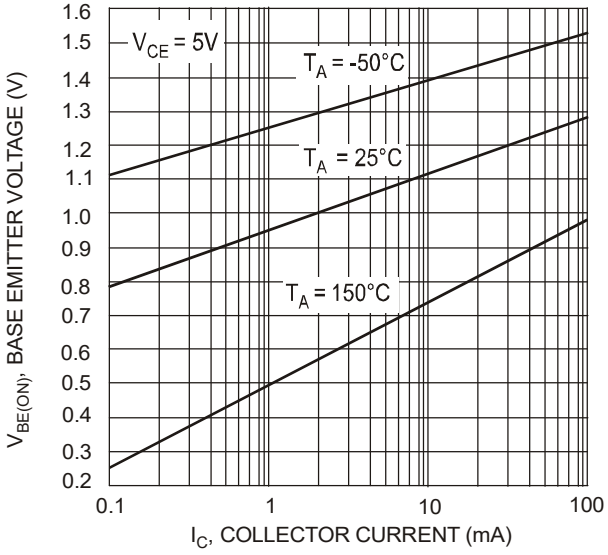


Fig. 4, Base Emitter Voltage vs. Collector Current

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